NMCP COVID-19 Literature Report #51: Friday, 11 December 2020

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Purpose: These weekly reports, published on Fridays, are curated collections of current research, evidence reviews, special reports, grey literature, and news regarding the COVID-19 pandemic that may be of interest to medical providers and leadership. All reports are available online at https://nmcp.libguides.com/covidreport. Access is private; you will need to use the direct link or bookmark the URL, along with the case-sensitive password "NMCPfinest".

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily. Please feel free to reach out with questions, suggestions for future topics, or any other feedback.

Statistics

Global today: 69,765,806 confirmed cases and 1,585,221 deaths in 191 countries/regions

1 week ago: 65,408,787 confirmed cases and 1,509,743 deaths in 191 countries/regions

2 weeks ago: NA (no report that week to document numbers)

*United States** top 5 states by cases (Virginia is ranked 21st)

	TOTAL US	CA	TX	FL	IL	NY
Cases	15,619,035	1,488,167	1,374,256	1,094,697	823,531	743,242
Tests	213,015,816	26,324,332	11,721,811	13,490,464	11,721,811	21,301,446
Deaths	292,196	20,643	23,897	19,591	14,844	35,266

*see census.gov for current US Population data; NA: not all data available JHU CSSE as of 1000 EDT 11 December 2020

Virginia	Total (state)	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	274,438	7,289	3,231	4,449	7,250	3,509	3,120	12,702
Hospitalizations	15,864	564	156	173	502	377	193	599
Deaths	4,371	88	38	58	99	73	83	125

VA DOH as of 1000 EDT 11 December 2020

The Latest News on COVID-19 Vaccines

Late on Thursday, 10 December, the FDA's Vaccines and Related Biological Products Advisory Committee (VRBPAC) voted that COVID-19 vaccine from Pfizer and BioNTech has benefits that outweigh the risks in individuals age 16 and old (Medpage).

The vote – 17 for, 4 against, and 1 abstain – clears the way for consideration of an emergency use authorization (EUA) from the FDA. The main concern raised in the committee's discussion was the age of participants, specifically the 16- and 17-year olds in the study (Medpage).

The same day as the VRBPAC meeting, safety and efficacy data were published in the New England Journal of Medicine (NEJM; see also the FDA briefing document [pdf] for full data). FDA documents suggest that the vaccine is protective after 1 dose (CIDRAP).

The FDA is expected to decide on the EUA in the next few days, clearing the way for vaccine distribution, administration, and allocation as early as next week – although it could be next fall before there is widespread coverage (NPR). The FDA often follows the advice of advisory committees but is not required to do so (Medpage). Earlier in the week (Wednesday), the DOD released its COVID-19 vaccine distribution plan (DOD; see full schema [pdf]).

Other Countries

Last week, the UK approved the Pfizer/BioNTech COVID-19 vaccine (BBC). The first person in the UK to receive the vaccine was 90-year old Margaret Keenan, a retired shop clerk from Northern Ireland; the second person was a 81-year old man named William Shakespeare (AP). Health Canada approved the vaccine on Wednesday, 09 December 2020 (Health Canada; see also "what you should know" information).

Vaccine Experience

The UK has issued an anaphylaxis warning, expanding an earlier allergy warning, for the Pfizer vaccine after 2 reports of anaphylaxis and 1 possible allergic reaction following administration (Reuters). One article has attempted to determine the ingredients (MIT Tech Review).

Other Things of Interest and Special Reports

ASPR: COVID-19 and Healthcare Professional Stress and Resilience [pdf]

> "In this issue ASPR TRACIE strives to collect and share the most valuable, timely, and helpful information for you and your colleagues and offer the following resources to address healthcare worker mental health and resilience."

ASPR: Emergency Responder Self-Care Plan [pdf]

> "Being a resilient responder starts with a commitment to taking care of yourself. This can be increasingly difficult during a pandemic, where responders experience additional stressors related to home and personal circumstances as well as those brought on by challenging mission demands. There are important steps you can take to keep yourself healthy and fit for duty as you take care of others. Complete this self-care plan before each mission/event and keep it with you so that you are ready to apply coping strategies when things get tough."

NIAID: Workshop on Post-Acute Sequelae of COVID-19

> Virtual workshop, held on 03 and 04 December 2020; videocast available.
>
> "The workshop will open with an overview of the current challenges, talks on clinical observations (both US and international), and some insights from the patient's perspective. Focus will switch to pathogenic features of coronaviruses as well as host immunological responses. The first day will wrap up with a series of talks on post-acute sequelae of COVID-19 as reported to date in various focus areas.
>
> The second day will start with a talk on the intersection of social determinants of health and race/ethnicity on post-acute COVID-19 sequelae and the charge to the breakout groups, who will dive deeper to identify key knowledge gaps regarding the sequelae in various focus areas."

Canada Communicable Disease Report (CCDR): COVID-19 and length of illness (published 05 November 2020)

> "Twenty databases and key websites were searched for relevant reviews, peer-reviewed publications and preprints up to August 31, 2020. Keywords included: “Shedding”, “Viral dynamics”, “Viral clearance”, “Viable”, “Culture”, “Infectivity”, “SARS-CoV-2 detection”, “Infectious Period”, “Communicability period”, “Recurrence”, and “Re-positive”. Data from studies were extracted into evidence tables on risk of infection, severity of disease and mortality and organized by asymptomatic, pre-symptomatic, symptomatic, recurrent or reinfection, as well as culture versus RT-PCR and sample source (e.g. respiratory, fecal, etc.)….
>
> Across studies, similar viral loads have been reported for asymptomatic, pre-symptomatic, and symptomatic cases. Mild cases are typically no longer infectious 10 days after diagnosis. More severe cases are generally infectious for at least 20 days; when these cases are no longer infectious can only be confirmed by viral culture."

Selected Literature: Peer-Reviewed Journals

Date given is the date published or posted online; often these papers are ahead of print.

11 December 2020

MMWR: COVID-19 Mortality Among American Indian and Alaska Native Persons — 14 States, January–June 2020

> "COVID-19 incidence is higher among American Indians/Alaska Natives (AI/ANs) than among non-Hispanic Whites. In 2009, AI/ANs experienced disproportionately high pandemic influenza A(H1N1)–associated mortality.
>
> Based on data from 14 participating states, age-adjusted COVID-19–associated mortality among AI/ANs was 1.8 times that among non-Hispanic Whites. Among AI/ANs, mortality was higher among men than among women, and the disparity in mortality compared with non-Hispanic Whites was highest among persons aged 20–49 years.
>
> AI/ANs have experienced disproportionate rates of infection and mortality during the COVID-19 pandemic. The excess risk, especially for AI/AN males and persons aged 20–49 years, should be considered when planning and implementing medical countermeasures and other prevention activities."

MMWR: Implementing Mitigation Strategies in Early Care and Education Settings for Prevention of SARS-CoV-2 Transmission — Eight States, September–October 2020

> "The benefits of in-person child care programs are myriad; however, SARS-CoV-2 transmission has been documented in child care facilities.
>
> Head Start and Early Head Start programs successfully implemented CDC-recommended guidance and other ancillary measures for child care programs that remained open, allowing them to continue offering in-person learning. These approaches were documented to guide implementation of mitigation strategies in child care settings.
>
> Implementing and monitoring adherence to recommended mitigation strategies can reduce risk for SARS-CoV-2 transmission in child care settings. These approaches could be applied to other early care and education settings that remain open for in-person learning and potentially reduce the spread of coronavirus disease 2019."

MMWR: Racial and Ethnic Differences in Parental Attitudes and Concerns About School Reopening During the COVID-19 Pandemic — United States, July 2020

> "Families and school districts face challenges balancing COVID-19 mitigation and school reopening.

Among parents of school-aged children who participated in an Internet panel survey, racial and ethnic minority parents were more concerned about some aspects of school reopening, such as compliance with mitigation measures, safety, and their child contracting or bringing home COVID-19, than were non-Hispanic White parents.

Understanding racial/ethnic differences in parental attitudes and concerns about school reopening can inform communication and mitigation strategies and highlights the importance of considering risks for severe COVID-19 and family resource needs when developing options for school attendance during the COVID-19 pandemic."

MMWR: Trends in U.S. Emergency Department Visits Related to Suspected or Confirmed Child Abuse and Neglect Among Children and Adolescents Aged <18 Years Before and During the COVID-19 Pandemic — United States, January 2019–September 2020

"Public health emergencies increase risk for child abuse and neglect because of increased stressors and loss of financial and social supports.

During the COVID-19 pandemic, the total number of emergency department visits related to child abuse and neglect decreased, but the percentage of such visits resulting in hospitalization increased, compared with 2019.

The pandemic has affected health care–seeking patterns for child abuse and neglect, raising concerns that victims might not have received care and that severity of injuries remained stable or worsened. Implementation of strategies to prevent child abuse and neglect is important, particularly during public health emergencies."

10 December 2020

Clin Infect Dis: Comparison of Estimated SARS-CoV-2 Seroprevalence through Commercial Laboratory Residual Sera Testing and a Community Survey

"We compared severe acute respiratory syndrome–related coronavirus-2 seroprevalence estimated from commercial laboratory residual sera and a community household survey in metropolitan Atlanta during April-May 2020 and found these two estimates to be similar (4.94% versus 3.18%). Compared with more representative surveys, commercial sera can provide an approximate measure of seroprevalence."

JAMA Intern Med: Evaluation of Cloth Masks and Modified Procedure Masks as Personal Protective Equipment for the Public During the COVID-19 Pandemic

"Question: What are the fitted filtration efficiencies (FFEs) of consumer-grade masks, improvised face coverings, and modified procedure masks commonly used during the coronavirus disease 2019 (COVID-19) pandemic?

Findings: In this comparative study of face covering FFEs, we observed that consumer-grade masks and improvised face coverings varied widely, ranging from 26.5% to 79.0% FFE. Modifications intended to enhance the fit of medical procedure masks improved FFE measurements from 38.5% (unmodified mask) to as much as 80.2%.

Meaning: Simple modifications can improve the fit and filtration efficiency of medical procedure masks; however, the practical effectiveness of consumer-grade masks available to the public is, in many cases, comparable with or better than their non-N95 respirator medical mask counterparts."

JAMA Netw Open: Risk Factors Associated With In-Hospital Mortality in a US National Sample of Patients With COVID-19

"Question: What are the epidemiologic characteristics of patients with coronavirus disease 2019 (COVID-19) treated in US hospitals, and what risk factors are associated with mortality?

Findings: In this cohort study of 64 781 patients with COVID-19 treated in 592 US hospitals during April and May 2020, the in-hospital mortality rate was 20.3% among inpatients, and severe complications were common. Receipt of statin, angiotensin-converting enzyme inhibitors, and calcium channel blockers were associated with decreased odds of mortality, but the combination use of hydroxychloroquine and azithromycin was associated with increased odds of mortality.

Meaning: In this study, COVID-19 was associated with severe complications and deaths among patients hospitalized in the United States; certain medications may be associated with decreased odds of mortality."

JAMA Oncol: Analyses of Risk, Racial Disparity, and Outcomes Among US Patients With Cancer and COVID-19 Infection

"Question: Are patients with cancer at increased risk for coronavirus disease 2019 (COVID-19) infection and its adverse outcomes?

Findings: In this case-control analysis of electronic medical records from 73.4 million unique patients, patients with a recent diagnosis of cancer were at significantly increased risk for COVID-19 infection and its adverse outcomes, especially in African Americans.

Meaning: Based on these findings, it is important to closely monitor patients with cancer and protect them from exposure to severe acute respiratory syndrome coronavirus 2 and the severe outcomes of COVID-19."

Pfizer/BioNTech vaccine NEJM: Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine

"In an ongoing multinational, placebo-controlled, observer-blinded, pivotal efficacy trial, we randomly assigned persons 16 years of age or older in a 1:1 ratio to receive two doses, 21 days apart, of either placebo or the BNT162b2 vaccine candidate (30 µg per dose). BNT162b2 is a lipid nanoparticle–formulated, nucleoside-modified RNA vaccine that encodes a prefusion stabilized, membrane-anchored SARS-CoV-2 full-length spike protein. The primary end points were efficacy of the vaccine against laboratory-confirmed Covid-19 and safety.

A total of 43,548 participants underwent randomization, of whom 43,448 received injections: 21,720 with BNT162b2 and 21,728 with placebo. There were 8 cases of Covid-19 with onset at least 7 days after the second dose among participants assigned to receive BNT162b2 and 162 cases among those assigned to placebo; BNT162b2 was 95% effective in preventing Covid-19 (95% credible interval, 90.3 to 97.6). Similar vaccine efficacy (generally 90 to 100%) was observed across subgroups defined by age, sex, race, ethnicity, baseline body-mass index, and the presence of coexisting conditions. Among 10 cases of severe Covid-19 with onset after the first dose, 9 occurred in placebo recipients and 1 in a BNT162b2 recipient. The safety profile of BNT162b2 was characterized by short-term, mild-to-moderate pain at the injection site, fatigue, and headache. The incidence of serious adverse events was low and was similar in the vaccine and placebo groups.

A two-dose regimen of BNT162b2 conferred 95% protection against Covid-19 in persons 16 years of age or older. Safety over a median of 2 months was similar to that of other viral vaccines."

NEJM: Phase 1–2 Trial of a SARS-CoV-2 Recombinant Spike Protein Nanoparticle Vaccine

> "NVX-CoV2373 is a recombinant severe acute respiratory syndrome coronavirus 2 (rSARS-CoV-2) nanoparticle vaccine composed of trimeric full-length SARS-CoV-2 spike glycoproteins and Matrix-M1 adjuvant.
>
> We initiated a randomized, placebo-controlled, phase 1–2 trial to evaluate the safety and immunogenicity of the rSARS-CoV-2 vaccine (in 5-µg and 25-µg doses, with or without Matrix-M1 adjuvant, and with observers unaware of trial-group assignments) in 131 healthy adults. In phase 1, vaccination comprised two intramuscular injections, 21 days apart. The primary outcomes were reactogenicity; laboratory values (serum chemistry and hematology), according to Food and Drug Administration toxicity scoring, to assess safety; and IgG anti–spike protein response (in enzyme-linked immunosorbent assay [ELISA] units). Secondary outcomes included unsolicited adverse events, wild-type virus neutralization (microneutralization assay), and T-cell responses (cytokine staining). IgG and microneutralization assay results were compared with 32 (IgG) and 29 (neutralization) convalescent serum samples from patients with Covid-19, most of whom were symptomatic. We performed a primary analysis at day 35.

After randomization, 83 participants were assigned to receive the vaccine with adjuvant and 25 without adjuvant, and 23 participants were assigned to receive placebo. No serious adverse events were noted. Reactogenicity was absent or mild in the majority of participants, more common with adjuvant, and of short duration (mean, ≤2 days). One participant had mild fever that lasted 1 day. Unsolicited adverse events were mild in most participants; there were no severe adverse events. The addition of adjuvant resulted in enhanced immune responses, was antigen dose–sparing, and induced a T helper 1 (Th1) response. The two-dose 5-µg adjuvanted regimen induced geometric mean anti-spike IgG (63,160 ELISA units) and neutralization (3906) responses that exceeded geometric mean responses in convalescent serum from mostly symptomatic Covid-19 patients (8344 and 983, respectively).

At 35 days, NVX-CoV2373 appeared to be safe, and it elicited immune responses that exceeded levels in Covid-19 convalescent serum. The Matrix-M1 adjuvant induced CD4+ T-cell responses that were biased toward a Th1 phenotype."

09 December 2020

JAMA: Effect of a Lower vs Higher Positive End-Expiratory Pressure Strategy on Ventilator-Free Days in ICU Patients Without ARDS: A Randomized Clinical Trial

"Question: In patients in the intensive care unit (ICU) who received invasive ventilation for reasons other than acute respiratory distress syndrome, is a ventilation strategy with lower positive end-expiratory pressure (PEEP) noninferior to a strategy using higher PEEP with respect to the number of ventilator-free days at day 28?

Findings: In this randomized clinical trial that included 980 ICU patients receiving invasive ventilation and who were expected not to be extubated within 24 hours of randomization, a ventilation strategy using lower PEEP compared with a strategy using higher PEEP resulted in 18 vs 17 ventilator-free days at day 28, a difference that did not exceed the noninferiority margin of −10%.

Meaning: Among patients in the ICU receiving invasive ventilation, a strategy with lower PEEP was noninferior to a strategy using higher PEEP."

JAMA Dermatol: Mucocutaneous Manifestations of Multisystem Inflammatory Syndrome in Children During the COVID-19 Pandemic

"Question: What were the mucocutaneous findings in hospitalized patients with multisystem inflammatory syndrome in children (MIS-C) during the peak incidence of coronavirus disease 2019 (COVID-19) in New York City in 2020?

Findings: This case series included 35 hospitalized children who met definitional and/or epidemiologic criteria for MIS-C, 83% of whom exhibited mucocutaneous symptoms that lasted from hours to days. Conjunctival injection, palmoplantar erythema, lip hyperemia, periorbital erythema and edema, strawberry tongue, and malar erythema were the most common findings.

Meaning: This study suggests that mucocutaneous findings, while polymorphous and transient, may aid in the recognition of MIS-C."

Nat Commun: Male sex identified by global COVID-19 meta-analysis as a risk factor for death and ITU admission

"Anecdotal evidence suggests that Coronavirus disease 2019 (COVID-19), caused by the coronavirus SARS-CoV-2, exhibits differences in morbidity and mortality between sexes. Here, we present a meta-analysis of 3,111,714 reported global cases to demonstrate that, whilst there is no difference in the proportion of males and females with confirmed COVID-19, male patients have almost three times the odds of requiring intensive treatment unit (ITU) admission (OR = 2.84; 95% CI = 2.06, 3.92) and higher odds of death (OR = 1.39; 95% CI = 1.31, 1.47) compared to females. With few exceptions, the sex bias observed in COVID-19 is a worldwide phenomenon. An appreciation of how sex is influencing COVID-19 outcomes will have important implications for clinical management and mitigation strategies for this disease."

Occup Envrion Med: Occupation and risk of severe COVID-19: prospective cohort study of 120 075 UK Biobank participants

"UK Biobank data (2006–10) for England were linked to SARS-CoV-2 test results from Public Health England (16 March to 26 July 2020). Included participants were employed or self-employed at baseline, alive and aged <65 years in 2020. Poisson regression models were adjusted sequentially for baseline demographic, socioeconomic, work-related, health, and lifestyle-related risk factors to assess risk ratios (RRs) for testing positive in hospital or death due to COVID-19 by three occupational classification schemes (including Standard Occupation Classification (SOC) 2000).

Of 120 075 participants, 271 had severe COVID-19. Relative to non-essential workers, healthcare workers (RR 7.43, 95% CI 5.52 to 10.00), social and education workers (RR 1.84, 95% CI 1.21 to 2.82) and other essential workers (RR 1.60, 95% CI 1.05 to 2.45) had a higher risk of severe COVID-19. Using more detailed groupings, medical support staff (RR 8.70, 95% CI 4.87 to 15.55), social care (RR 2.46, 95% CI 1.47 to 4.14) and transport workers (RR 2.20, 95% CI 1.21 to 4.00) had the highest risk within the broader groups. Compared with white non-essential workers, non-white non-essential workers had a higher risk (RR 3.27, 95% CI 1.90 to 5.62) and non-white essential workers had the highest risk (RR 8.34, 95% CI 5.17 to 13.47). Using SOC 2000 major groups, associate professional and technical

occupations, personal service occupations and plant and machine operatives had a higher risk, compared with managers and senior officials.

Essential workers have a higher risk of severe COVID-19. These findings underscore the need for national and organisational policies and practices that protect and support workers with an elevated risk of severe COVID-19."

08 December 2020

Ann Intern Med: Simultaneous COVID-19 in Homozygous Twins

This case report details how identical male twins developed COVID-19 at the same time; one became very sick, the other had mild illness.

Lancet: Safety and efficacy of the ChAdOx1 nCoV-19 vaccine (AZD1222) against SARS-CoV-2: an interim analysis of four randomised controlled trials in Brazil, South Africa, and the UK

"We report on the first clinical efficacy results of ChAdOx1 nCoV-19 in a pooled analysis of phase 2/3 trials in the UK and Brazil, and safety data from more than 20 000 participants enrolled across four clinical trials in the UK, Brazil, and South Africa. ChAdOx1 nCoV-19 has an acceptable safety profile and is efficacious against symptomatic COVID-19, with no hospital admissions or severe cases reported in the ChAdOx1 nCoV-19 arm. The vaccine can be stored and distributed at 2–8°C, making it particularly suitable for global distribution.

The development of safe, effective, affordable, and deployable vaccines against COVID-19 remains paramount in solving the pandemic crisis and re-establishing normality. The positive results presented here support regulatory submissions for conditional or emergency use of ChAdOx1 nCoV-19."

Lancet Infect Dis: SARS-CoV-2 infection and transmission in educational settings: a prospective, cross-sectional analysis of infection clusters and outbreaks in England

"We analysed data on confirmed COVID-19 cases and outbreaks in educational settings in England following the reopening of mainly early years settings and primary schools as the first national lockdown was eased. The number of events (cases, coprimary cases, and outbreaks) reported in this period was low, with an estimated 1·1 events (95% CI 0·75–1·4) per 1000 settings per month in early years settings, 6·5 events (5·3–7·9) per 1000 settings per month in primary schools, and 4·5 (2·7–7·1) events per 1000 settings per month in secondary schools, although the proportion of case introductions that resulted in outbreaks ranged from 26% (95% CI 18–36) to 40% (25–57) depending on the setting. The number of outbreaks in educational settings was strongly associated with regional COVID-19 incidence, with the risk of an outbreak increasing by 72% (28–130) for every five cases per 100 000

increase in community incidence (p<0·0001). Staff members were more likely to be affected than students.

Taken together with literature evidence, our findings emphasise a need to improve awareness and infection control measures for staff members both within and outside the educational setting. The strong correlation between COVID-19 outbreaks and regional incidence and the proportion of cases in school settings ultimately resulting in outbreaks also highlight the importance of controlling the disease in the community to protect staff and students in educational settings."

Pediatrics: COVID-19 Transmission in US Child Care Programs

"OBJECTIVES: Central to the debate over school and child care reopening is whether children are efficient coronavirus disease 2019 (COVID-19) transmitters and are likely to increase community spread when programs reopen. We compared COVID-19 outcomes in child care providers who continued to provide direct in-person child care during the first 3 months of the US COVID-19 pandemic with outcomes in those who did not.

METHODS: Data were obtained from US child care providers (N = 57 335) reporting whether they had ever tested positive or been hospitalized for COVID-19 (n = 427 cases) along with their degree of exposure to child care. Background transmission rates were controlled statistically, and other demographic, programmatic, and community variables were explored as potential confounders. Logistic regression analysis was used in both unmatched and propensity score–matched case-control analyses.

RESULTS: No association was found between exposure to child care and COVID-19 in both unmatched (odds ratio [OR], 1.06; 95% confidence interval [CI], 0.82–1.38) and matched (OR, 0.94; 95% CI, 0.73–1.21) analyses. In matched analysis, being a home-based provider (as opposed to a center-based provider) was associated with COVID-19 (OR, 1.59; 95% CI, 1.14–2.23) but revealed no interaction with exposure.

CONCLUSIONS: Within the context of considerable infection mitigation efforts in US child care programs, exposure to child care during the early months of the US pandemic was not associated with an elevated risk for COVID-19 transmission to providers. These findings must be interpreted only within the context of background transmission rates and the considerable infection mitigation efforts implemented in child care programs."

07 December 2020

Am J Drug Alcohol Abuse: Longer time spent at home during COVID-19 pandemic is associated with binge drinking among US adults

"Background: The COVID-19 pandemic has introduced and exacerbated stressors (e.g., job loss, poor mental health) for adults across the United States (US) since the first statewide shelter-in-place order on March 19, 2020. Limited research has evaluated if, and how, pandemic-related stressors are associated with changes in alcohol consumption and binge drinking.

Objectives: This analysis aims to identify COVID-19-related stressors associated with changes in alcohol consumption and binge drinking since the outbreak of the coronavirus.

Methods: Data were collected on sociodemographics, alcohol consumption, and COVID-19-related stressors (household composition, job status, essential worker, stay-at-home duration, and depression) using a web-based, self-report survey to US adults from mid-March to mid-April 2020. Multivariable logistic and multinomial regression models were used to assess associations between COVID-19-related stressors and binge drinking and changes in alcohol consumption. Among 1,982 participants, 69% were female and 31% male.

Results: Thirty-four percent of the sample reported binge drinking during the COVID-19 pandemic. More binge drinkers increased alcohol consumption during the pandemic (60%) than non-binge drinkers (28%). After adjusting for sociodemographics, for every 1-week increase in time spent at home during the pandemic, there was 1.21 (95% CI: 1.08–1.35) greater odds of binge drinking. Additionally, binge drinkers with a previous diagnosis of depression and current depression symptoms had greater odds of increased alcohol consumption compared to those reporting no depression (AOR = 1.80, 95% CI: 1.15–2.81).

Conclusion: Specific COVID-19-related stressors are related to alcohol consumption. This highlights the ancillary and unintended effects of the COVID-19 pandemic which could have long-lasting population health consequences."

JAMA: Changes in Preterm Birth Phenotypes and Stillbirth at 2 Philadelphia Hospitals During the SARS-CoV-2 Pandemic, March-June 2020

"This study uses data from the GeoBirth pregnancy cohort of all births in 2 hospitals in Philadelphia to examine whether rates of preterm birth, spontaneous preterm birth, medically indicated preterm birth, and stillbirth have changed during the SARS-CoV-2 pandemic compared with prepandemic rates."

JAMA: Stillbirths During the COVID-19 Pandemic in England, April-June 2020

"This study uses National Health Service data to compare the stillbirth rate overall and regionally during the initial April-June 2020 coronavirus lockdown vs the same period in 2019."

JAMA Pediatr: Evaluation of Rooming-in Practice for Neonates Born to Mothers With Severe Acute Respiratory Syndrome Coronavirus 2 Infection in Italy

> "Question: Are rooming-in and breastfeeding safe for neonates born to mothers infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)?
>
> Findings: In this multicenter cohort study, 62 neonates born to 61 mothers with SARS-CoV-2 infection were roomed-in with appropriate precautions; no neonate tested positive for SARS-CoV-2 on nasopharyngeal swab at birth, and 95% of them were breastfed. All neonates were followed up until age 3 weeks; only 1 neonate was diagnosed as having SARS-CoV-2 infection during follow-up.
>
> Meaning: The findings of this study suggest that mother-to-infant transmission of SARS-CoV-2 during rooming-in practice is rare, provided that adequate droplet and contact precautions are taken."

JAMA Pediatr: Number of Childhood and Adolescent Vaccinations Administered Before and After the COVID-19 Outbreak in Colorado

> "This study assesses the association of social distancing due to coronavirus disease 2019 (COVID-19) with immunizations administered by age category (0-2 years, 3-9 years, and 10-17 years) in Colorado."

06 December 2020

Clin Infect Dis: A meta-analysis on the role of children in SARS-CoV-2 in household transmission clusters

> "The role of children in the spread of SARS-CoV-2 remains highly controversial. To address this issue, we performed a meta-analysis of the published literature on household SARS-CoV-2 transmission clusters (n=213 from 12 countries). Only 8 (3.8%) transmission clusters were identified as having a paediatric index case. Asymptomatic index cases were associated with a lower secondary attack in contacts than symptomatic index cases (estimate risk ratio [RR], 0.17; 95% confidence interval [CI], 0.09-0.29). To determine the susceptibility of children to household infections the secondary attack rate (SAR) in paediatric household contacts was assessed. The secondary attack rate in paediatric household contacts was lower than in adult household contacts (RR, 0.62; 95% CI, 0.42-0.91). These data have important implications for the ongoing management of the COVID-19 pandemic, including potential vaccine prioritization strategies."

04 December 2020

JAMA Netw Open: Assessment of Racial/Ethnic Disparities in Hospitalization and Mortality in Patients With COVID-19 in New York City

> "Question: Do outcomes among patients with coronavirus disease 2019 (COVID-19) differ by race/ethnicity, and are observed disparities associated with comorbidity and neighborhood characteristics?
>
> Findings: This cohort study including 9722 patients found that Black and Hispanic patients were more likely than White patients to test positive for COVID-19. Among patients hospitalized with COVID-19 infection, Black patients were less likely than White patients to have severe illness and to die or be discharged to hospice.
>
> Meaning: Although Black patients were more likely than White patients to test positive for COVID-19, after hospitalization they had lower mortality, suggesting that neighborhood characteristics may explain the disproportionately higher out-of-hospital COVID-19 mortality among Black individuals."

JAMA Netw Open: Rate of Pediatric Appendiceal Perforation at a Children's Hospital During the COVID-19 Pandemic Compared With the Previous Year

> "This cross-sectional study assesses the rate of appendiceal perforations during the COVID-19 pandemic at a children's hospital during10-week periods in 2020 vs 2019."

Nat Commun: Evidence of exposure to SARS-CoV-2 in cats and dogs from households in Italy

> "SARS-CoV-2 emerged from animals and is now easily transmitted between people. Sporadic detection of natural cases in animals alongside successful experimental infections of pets, such as cats, ferrets and dogs, raises questions about the susceptibility of animals under natural conditions of pet ownership. Here, we report a large-scale study to assess SARS-CoV-2 infection in 919 companion animals living in northern Italy, sampled at a time of frequent human infection. No animals tested PCR positive. However, 3.3% of dogs and 5.8% of cats had measurable SARS-CoV-2 neutralizing antibody titers, with dogs from COVID-19 positive households being significantly more likely to test positive than those from COVID-19 negative households. Understanding risk factors associated with this and their potential to infect other species requires urgent investigation."

03 December 2020

Clin Infect Dis: Characteristics of Adults aged 18–49 Years without Underlying Conditions Hospitalized with Laboratory-Confirmed COVID-19 in the United States, COVID-NET — March–August 2020

"Among 513 adults aged 18–49 years without underlying medical conditions hospitalized with COVID-19 during March–August 2020, 22% were admitted to intensive care unit; 10% required mechanical ventilation; and three patients died (0.6%). These data demonstrate that healthy younger adults can develop severe COVID-19."

Euro Surveill: Association between SARS-CoV-2 infection and Kawasaki-like multisystem inflammatory syndrome: a retrospective matched case–control study, Paris, France, April to May 2020

"We assessed the association between severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and Kawasaki disease (KD)-like multisystem inflammatory syndrome in a retrospective case-control study in France. RT-PCR and serological tests revealed SARS-CoV-2 infection in 17/23 cases vs 11/102 controls (matched odds ratio: 26.4; 95% confidence interval: 6.0-116.9), indicating strong association between SARS-CoV-2 infection and KD-like illness. Clinicians should keep a high level of suspicion for KD-like illness during the COVID-19 pandemic."

NEJM: Cytokine Storm

Review article that discusses the clinical features, laboratory findings, pathophysiological features, and treatment of cytokine storm; includes a special section on COVID-19–associated cytokine storm.

Pediatrics: Symptoms and Transmission of SARS-CoV-2 Among Children — Utah and Wisconsin, March–May 2020

"We enrolled individuals with coronavirus disease 2019 and their household contacts, assessed daily symptoms prospectively for 14 days, and obtained specimens for severe acute respiratory syndrome coronavirus 2 real-time reverse transcription polymerase chain reaction and serology testing. Among pediatric contacts (<18 years), we described transmission, assessed the risk factors for infection, and calculated symptom positive and negative predictive values. We compared secondary infection rates and symptoms between pediatric and adult contacts using generalized estimating equations.

Among 58 households, 188 contacts were enrolled (120 adults; 68 children). Secondary infection rates for adults (30%) and children (28%) were similar. Among households with potential for transmission from children, child-to-adult transmission may have occurred in 2 of 10 (20%), and child-to-child transmission may have occurred in 1 of 6 (17%). Pediatric case patients most commonly reported headache (79%), sore throat (68%), and rhinorrhea (68%); symptoms had low positive predictive values, except measured fever (100%; 95% confidence interval [CI]: 44% to 100%). Compared with symptomatic adults, children were less likely to report cough (odds ratio [OR]: 0.15; 95% CI: 0.04 to 0.57), loss of taste (OR:

0.21; 95% CI: 0.06 to 0.74), and loss of smell (OR: 0.29; 95% CI: 0.09 to 0.96) and more likely to report sore throat (OR: 3.4; 95% CI: 1.04 to 11.18).

Children and adults had similar secondary infection rates, but children generally had less frequent and severe symptoms. In two states early in the pandemic, we observed possible transmission from children in approximately one-fifth of households with potential to observe such transmission patterns."

02 December 2020

J Pediatr Infect Dis Soc: Healthcare-associated SARS-CoV-2 transmission in a neonatal unit: the importance of universal masking, hand hygiene and symptom screening in containment

"Following exposure to a health care worker with an influenza-like illness, two preterm neonates and six staff members developed symptoms and tested positive for SARS-CoV-2. This neonatal unit COVID-19 outbreak occurred prior to implementation of universal masking and symptom screening policies. Both neonates and all staff recovered, with no further healthcare-associated SARS-CoV-2 transmission following implementation of effective outbreak containment measures."

ICYMI (older than last 2 weeks)

Open Forum Infect Dis: Clinical, laboratory, and radiologic characteristics of patients with initial false-negative SARS-CoV-2 nucleic acid amplification test results (published 24 November 2020)

"Concerns about false-negative (FN) SARS-CoV-2 nucleic acid amplification tests (NAATs) have prompted recommendations for repeat testing if suspicion for COVID-19 infection is moderate to high. However, the frequency of FNs and patient characteristics associated with FNs are poorly understood.

We retrospectively reviewed test results from 15,011 adults who underwent ≥1 SARS-CoV-2 NAATs; 2,699 had an initial negative NAAT and repeat testing. We defined FNs as ≥1 negative NAATs followed by a positive NAAT within 14 days during the same episode of illness. We stratified subjects with FNs by duration of symptoms prior to the initial FN test (≤5 days versus >5 days) and examined their clinical, radiologic, and laboratory characteristics.

Sixty of 2,699 subjects (2.2%) had a FN result during the study period. The weekly frequency of FNs among subjects with repeat testing peaked at 4.4%, coinciding with peak NAAT positivity (38%). Most subjects with FNs had symptoms (52/60; 87%) and chest radiography (19/32; 59%) consistent with COVID-19. Of the FN NAATs, 18/60 (30%) were performed

early (i.e., ≤1 day of symptom onset), and 18/60 (30%) were performed late (i.e., >7 days after symptom onset) in disease. Among 17 subjects with two consecutive FNs on NP NAATs, 9 (53%) provided lower respiratory tract (LRT) specimens for testing, all of which were positive.

Our findings support repeated NAATs among symptomatic patients, particularly during periods of higher COVID-19 incidence. LRT testing should be prioritized to increase yield among patients with high clinical suspicion for COVID-19."

J Neurol Neurosurg Psychiatry: Pattern of cognitive deficits in severe COVID-19 (published 20 November 2020)

"The severe form of COVID-19 tends to be associated with neurological deficits. Among patients with acute respiratory distress syndrome (ARDS), who benefited from mechanical ventilation and were examined after discontinuation of sedation and neuromuscular blockade, 69% presented agitation, 65% confusion, 67% corticospinal tract signs and 33% dysexecutive syndrome.

We describe here the pattern of cognitive deficits in a series of 13 consecutive inpatients hospitalised in the Lausanne University Hospital, whom we examined during the post-critical acute stage of severe COVID-19."

Age Ageing: Venous thromboembolic events in patients with COVID-19: A systematic review and meta-analysis (published 17 November 2020)

"This study aimed to explore the factors associated with prevalence of venous thromboembolism (VTE) in COVID-19 patients.

A total of 39 studies were analysed in this analysis. The incidence of pulmonary embolism and VTE in severe COVID-19 patients were 17% (95% CI, 13–21%) and 42% (95% CI, 25–60%), respectively. VTE were more common among individuals with COVID-19 of advance age. Male COVID-19 patients are more likely to experience VTE. Higher levels of white blood cell (WBC; WMD = 1.34 × 109/L; 95% CI, 0.84–1.84 × 109/L), D-dimer (WMD = 4.21 μg/ml; 95% CI, 3.77–4.66 μg/ml), activated partial thromboplastin time (APTT; WMD = 2.03 s; 95% CI, 0.83–3.24 s), fibrinogen (WMD = 0.49 μg/ml; 95% CI, 0.18–0.79 g/L) and C-reactive protein (CRP; WMD = 21.89 mg/L; 95% CI, 11.44–32.34 mg/L) were commonly noted in COVID-19 patients with VTE. Patients with lower level of lymphocyte (WMD = −0.15 × 109/L; 95% CI, −0.23-−0.07 × 109/L) was at high risk of developing VTE. The incidence of severe condition (OR = 2.66; 95% CI, 1.95–3.62) was more likely to occur among COVID-19 patients who developed VTE.

VTE is a common complication in severe COVID-19 patients and thromboembolic events are also associated with adverse outcomes."

Selected Literature: Preprints

Preprints are found on preprint servers such as arXiv, bioRxiv, and medRxiv; they are commonly used for biomedical research. Preprints may later be published in peer-reviewed journals. Per medRxiv: "Preprints are preliminary reports of work that have not been certified by peer review. They should not be relied on to guide clinical practice or health-related behavior and should not be reported in news media as established information."

medRxiv: Predictors of COVID-19 vaccine acceptance across time and countries (posted 11 December 2020)

> "Understanding the drivers of vaccine acceptance is crucial to the success of COVID-19 mass vaccination campaigns. Across 25 national samples from 12 different countries we examined the psychological correlates of willingness to receive a COVID-19 vaccine (total N = 25,334), with a focus on risk perception and trust in a number of relevant actors, both in general and specifically regarding the COVID-19 pandemic. Male sex, trust in medical and scientific experts and worry about the virus emerge as the most consistent predictors of reported vaccine acceptance across countries. In a subset of samples we show that these effects are robust after controlling for attitudes towards vaccination in general. Our results indicate that the burden of trust largely rests on the shoulders of the scientific and medical community, with implications for how future COVID-19 vaccination information should be communicated to maximize uptake."

SSRN: Expiring Eviction Moratoriums and COVID-19 Incidence and Mortality (posted 30 November; updated 03 December 2020)

> "Background: The COVID-19 pandemic and associated economic crisis has rendered millions of U.S. households unable to pay rent, placing them at risk for eviction. Evictions may accelerate COVID-19 transmission by increasing household crowding and decreasing individuals' ability to comply with social distancing directives. We leveraged variation in the expiration of eviction moratoriums in U.S. states to test for associations between evictions and COVID-19 incidence and mortality.
>
> Methods: The study included 44 U.S. states that instituted eviction moratoriums., followed from March 13th to September 3rd, 2020. We modeled associations using a difference-in-difference approach with an event study specification. Negative binomial regression models of cases and deaths included fixed effects for state and week and controlled for time-varying indicators of testing, stay-at-home orders, school closures, and mask mandates. We then used model predictions to estimate cumulative cases and deaths associated with expiring eviction moratoriums

Findings: Twenty-seven states lifted eviction moratoriums during the study period. COVID-19 incidence in states that lifted their moratoriums was 1.6 (95% CI 1.0,2.3) times the incidence of states that maintained their moratoriums at 10 weeks post-lifting and grew to a ratio of 2.1 (CI 1.1,3.9) at ≥16 weeks. Mortality in states that lifted their moratoriums was 1.6 (CI 1.2,2.3) times the mortality of states that maintained their moratoriums at 7 weeks post-lifting and grew to a ratio of 5.4 (CI 3.1,9.3) at ≥16 weeks. These results translate to an estimated 433,700 excess cases (CI 365200,502200) and 10,700 excess deaths (CI 8900,12500) nationally.

Interpretation: Lifting eviction moratoriums was associated with increased COVID-19 incidence and mortality, supporting the public health rationale for use of eviction moratoriums to prevent the spread of COVID-19."

Events and Presentations

WHAT: CDC COCA: What Every Clinician Should Know about COVID-19 Vaccine Safety

WHEN: Monday, 14 December 2020, 1300–1400 ET

OVERVIEW: Monitoring vaccine safety is a vital part of the nation's response to the COVID-19 pandemic. As COVID-19 vaccines become available, the public's knowledge and confidence in their safety, both initially and during extended use, is an important part of a successful national vaccination effort. CDC remains committed to ensuring that public health officials, healthcare providers, and the public have accurate and timely information on the safety of COVID-19 vaccines.

During this COCA call, clinicians will learn how they can educate their patients about what to expect after COVID-19 vaccination. In addition, they will learn how they can play an important role in monitoring the safety of COVID-19 vaccines. This includes encouraging patients to enroll in v-safe, a new smartphone-based, after-vaccination health checker for people who receive COVID-19 vaccines, and to use v-safe to report how they're feeling. Clinicians also will learn how to report adverse events (possible side effects) to the Vaccine Adverse Event Reporting System (VAERS).

See: https://emergency.cdc.gov/coca/calls/2020/callinfo_121420.asp

WHAT: CDC COCA: Making Practical Decisions for Crisis Standards of Care at the Bedside During the COVID-19 Pandemic

WHEN: Thursday, 17 December 2020, 1400–1500 ET

OVERVIEW: Healthcare operations and healthcare services delivery change due to scarcity of required resources under pervasive (e.g., pandemic influence, COVID-19) and catastrophic disaster (e.g., earthquake, hurricane) conditions. The standards of care proposed under these unique and challenging conditions must be a reasonable approach to healthcare service delivery that merges public health, ethical, and medical care demands.

During this COCA Call, experts from Hennepin Healthcare and Bellevue Hospital will present background on the Institute of Medicine (IOM) framework, Guidance for Establishing Crisis Standards of Care for Use in Disaster Situations (IOM, 2009), and identify how Crisis Standards of Care apply to the COVID-19 pandemic. Presenters will also highlight systems-level information sharing and coalition-level coordination activities to help clinicians plan for these potential situations and make medical decisions during a pandemic.

Free CE available

See: https://emergency.cdc.gov/coca/calls/2020/callinfo_121720.asp

WHAT: Physician Well-Being: What's Changed and What's More Important than Ever in the Wake of COVID-19

DETAILS: Register to view recording at:
https://register.gotowebinar.com/recording/187486934540164875

PowerPoint [pdf]: https://files.asprtracie.hhs.gov/documents/covid-19-and-healthcare-professional-stress-and-resilience-speaker-series-carr-and-ripp.pdf

Transcript [pdf]: https://files.asprtracie.hhs.gov/documents/behavioral-health-speaker-series-carr-ripp-transcript.pdf

News in Brief

"200 hospitals have been at full capacity, and 1/3 of all US hospitals are almost out of ICU space" (CNN).

Other Vaccine News

The next six months will be a 'vaccine purgatory' as some people get vaccinated while others have to wait (Atlantic).

"Demand for COVID vaccines expected to get heated — and fast" (KHN).

Rich countries are 'hoarding' vaccines, and the chart shows the disparities (NPR).

Johnson & Johnson is cutting the size of its COVID-19 vaccine study because the disease is so prevalent in the US (STAT).

Treatment and Therapies

"First-of-its-kind African trial tests common drugs to prevent severe COVID-19" (Science).

Early animal studies of molnupiravir, an antiviral drug, suggest it may prevent severe symptoms and transmission of SARS-CoV-2 (Entrepreneur; see study in Nature Microbiology).

Exposure, Testing, and Risks

"Childrens' untrained immune response seems to be key to eliminating SARS-CoV-2" (Nature).

"The Swiss Cheese Model of pandemic defense: It's not edible, but it can save lives. The virologist Ian Mackay explains how." (NYT)

The FDA has approved an at-home COVID-19 test (FDA).

Thanks, Coronavirus: Content Warning Edition

They will break your heart: Kids' letters to Santa show how the pandemic is affecting them (CNN).

You may get very, very angry and/or start planning a move): "'There was a pandemic?' What life is like in countries without COVID" (BuzzFeed).

Deer are just out there shopping like nothing's going on… and without masks! (Twitter) –>

Long Reads

The December issue of *Homeland Security Affairs* focuses on COVID-19 with essays that talk about responses and lessons learned (HSAJ).

"What the chaos in hospitals is doing to doctors: Politicians' refusal to admit when hospitals are overwhelmed puts a terrible burden on health-care providers." (Atlantic)

" How climate change is ushering in a new pandemic era: A warming world is expanding the range of deadly diseases and risking an explosion of new zoonotic pathogens from the likes of bats, mosquitoes, and ticks." (Rolling Stone)

Graphic Medicine

<– "Holiday cards for health care workers" (Ann Intern Med).

This comic may help kids cope with the pandemic (NPR).

This infographic shows the 'stunning pace of progress' made in the year of COVID (Synbiobeta).

A Thousand Words (And Then Some)

2020 in photos (from The Atlantic):

- how the first months unfolded
- a look at the middle months
- wrapping up the year
- top 25 news photos

Other Outbreaks and Health Threats

Global influenza activity has been lower than expected for this time of year (WHO).

And speaking of the flu, a universal influenza virus is showing good results in humans in a phase 1 trial (ONT; see full article in Nature Medicine).

Health officials have found traces of nickel and lead in hospitalized patients affected by a mysterious, non-COVID illness in India (AP).

Well, I Didn't Have THAT on My 2020 Bingo Card

Mount Everest has grown 86cm taller (Nepali Times; includes an "Everest measurement timeline" in case you are curious how it has changed).

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